User Manual

BroadR-Reach – MediaConverter

Version 1.2
07. October 2015

You can download the latest documentation for the MediaConverter here:

http://www.technica-engineering.de/MC

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1 Feature List

The Technica Engineering BR-MediaConverter has the following basic features:

1 Port BroadR-Reach Ethernet
100 MBit/s Fullduplex on a single
unshielded twisted pair

1 Port Fast Ethernet
100 BaseTX

- ✓ Automotive Tyco MQS Connectors for BroadR-Reach and Power Supply
- ✓ Robust steel case
- ✓ DIP Switches for easy configuration

Power requirement:	8 to 16 Volt DC (nominal 12 Volt DC)
Power consumption:	2 Watt
Size:	92 x 63 x 30 mm
Wight:	0,2 kg
International Protection:	IP 2 0
Operating Temperature:	-40 to +80 °Celsius

2 Warranty and Safety Information

Before operating the device, read this manual thoroughly and retain it for your reference.
You can download the latest firmware and documentation for the MediaConverter here:
http://www.technica-engineering.de/MC

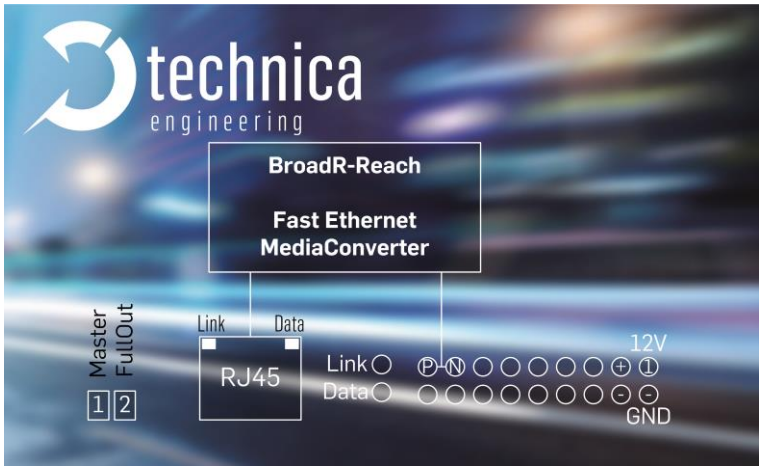
Use the device only as described in this manual.
Use only in dry conditions.
Do not apply power to a damaged device.

Do not open the device. Otherwise warranty will be lost.

This device is designed for engineering purpose only.
Special care has to be taken for operation.
Do not use this device in a series production car.
As this device is likely to be used under rough conditions, warranty is limited to 1 year.
Manufacturer liability for damage caused by using the device is excluded.

3 Pinning

The pinning of the ECU connectors is listed on the label on top of the device.



Connector color: Black
Power supply for the device is supplied by Pin 1 (12 Volt) and Pin 10 (Ground).

Warning: If you apply a voltage higher than 18 Volt, the device **will be damaged**!

The Tyco Electronics (TE) Micro Quad Lock System (MQS) is used.

Tyco, MQS Abdeckkappe,	2x9 Pol, black alternatively	Part Number 1-967416-1 Part Number 1-1355350-1
Tyco, MQS Buchsengehäuse,	2x9 Pol alternatively	Part Number 965778-1 Part Number 962108-2
Tyco crimp contact		Part Number 928999-1

Note: You can use the official Tyco tool for these crimp contacts. A cheap variant is the crimp tool for “PSK” contacts.

Warning: The Power “loop through” function is just a short circuit between pins 1-2 and pins 10-11. There is no fuse and no diode. If the current exceeds 0.8 Ampere the device will be damaged!

Pin	Function	Pin	Function
1	Battery +12 Volt Input	10	Power Ground
2	Battery +12 Volt loop trough	11	Power Ground loop trough
3	n.c.	12	n.c.
4	n.c.	13	n.c.
5	n.c.	14	n.c.
6	n.c.	15	n.c.
7	n.c.	16	n.c.
8	BroadR-Reach Port, Negative	17	n.c.
9	BroadR-Reach Port, Positive	18	n.c.

4 Configuration

The MediaConverter is configured by 2 DIP Switches on the front of the device.

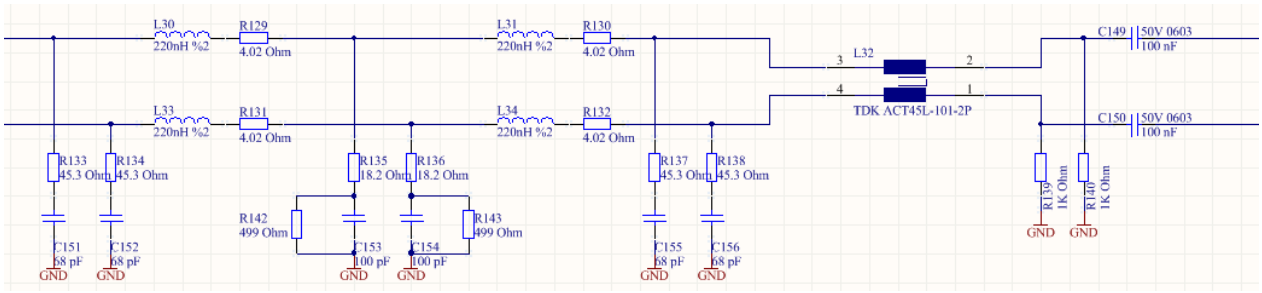
DIP Switch 1:	ON	= BroadR-Reach Port is set to Master.
	OFF	= Slave
DIP Switch 2:	ON	= BroadR-Reach Port is set to FullOut.
	OFF	= HalfOut

Note: In a BroadR-Reach Link one device has to be set to Master, the other has to be set to Slave Mode.

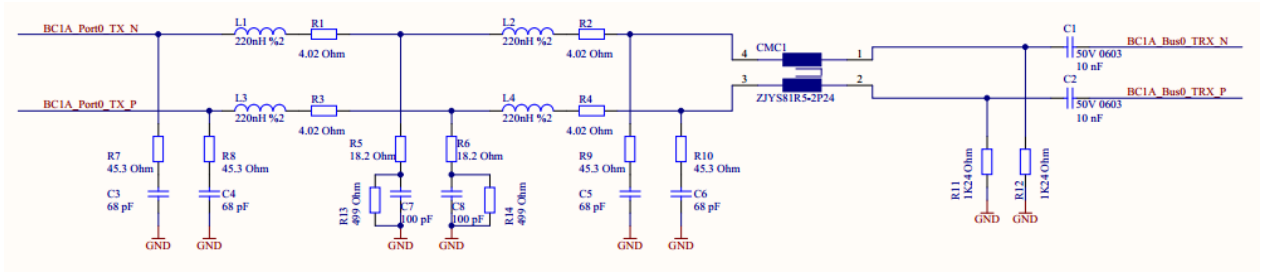
Note: The MediaConverter should always be set to FullOut. HalfOut was a former configuration for EMC optimization but will cause an instable link.

5 BR Filter

The following BR Filter is used in the MediaConverter HW Version 3.0:
In Version 3.0 the Würth CMC 510010003 is used for L32.
In Version 3.0a the TDK CMC ACT45L-101-2P is used for L32.



The following BR Filter is used in the old MediaConverter HW Version 2.0:



All Filter Versions are compatible and it will be possible to set up a stable link.
However, it is recommended to use the latest filter version.

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6 Frequently Asked Questions – FAQ

Q: What is the delay time for Ethernet packets through the MediaConverter?
A: The delay time is constant 2.0us. The delay is independent of the Ethernet packet frame size.

Q: What is the maximum Cable Length?
A: The MediaConverter is optimized for automotive use. The maximum line length for each BroadR-Reach segment is limited to 10 meters!

Q: The BR Link LED is lit but I have no valid BR Link. What is going wrong?
A: There is a bug in the used BroadR-Reach PHY. When the BR Plus and Minus lines are swapped and the MediaConverter Port is set to BR Slave then the Link LED is lit, but there is no data transmission possible. So please connect the BR lines correctly.

7 Contact

If you have any questions regarding this product please feel free to contact us:

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